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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/609,363	06/27/2003	Darshan B. Joshi	VRT0010C1US	8215

60429   7590   06/28/2007
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EXAMINER
JOO, JOSHUA

ART UNIT	PAPER NUMBER
2154	

MAIL DATE	DELIVERY MODE
06/28/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
	10/609,363	JOSHI ET AL.
Office Action Summary	Examiner	Art Unit	
	Joshua Joo	2154	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>25 May 2007</u>.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>25-46</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>25-46</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>27 June 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

Response to Communicated dated 5/25/2007

1.   Claims 25-46 are presented for examination.

Continued Examination Under 37 CFR 1.114

2.   A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR

1.17(e), was filed in this application after final rejection. Since this application is eligible for continued

examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the

finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's

submission filed on 5/25/2005 has been entered.

Response to Arguments

3.   Applicant's arguments with respect to claims 25-46 have been considered but are moot in view of

the new ground(s) of rejection. Applicant's amendment has necessitated the new ground(s) of rejection.

Claim Rejections - 35 USC § 101

4.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
> any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
> requirements of this title.

5.   Claims 36-46 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-

statutory subject matter.

Applicant is seeking to patent an apparatus comprising of modules (identifying module and

priority module), wherein Applicant has provided evidence that the modules are intended to be software

modules (see page 34, lines 17-20). Software modules do not meet one of the four categories of invention

and is not statutory. Specifically, software modules are not a series of steps or acts and thus is not a

process. Software modules are not a physical article or object and as such is not a machine or

manufacture. Software modules are not a combination of substances and therefore not a composition of

matter.

Claim Rejections - 35 USC § 112

6.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

7.   Claims 25-46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing

to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

> i)   Claims 25 and 36 recite, "each system in the set of systems meets a requirement for
> hosting a first application of a plurality of applications" and "when no systems among the
> plurality of systems meet the requirements for hosting the first application". If each of
> the system meet the requirements for hosting the first application, it is not clear as to how
> the systems do not meet the requirements for hosting the first application."

> ii)   Claims 30 and 41 are not clear because the claims recite, "a second system", but the
> claims and the claims to which claims 30 and 41 depend on do not define or refer to a
> first system. The first system will be considered as the "associated system".

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the
> manner in which the invention was made.

9.   Claims 25-28, 31-32, 34-39, 42-43, and 45-46 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Mashayekhi et al, US Patent #6,922,791 (Mashayekhi hereinafter), in view of Chew,

US Publication #2005/0177832 (Chew hereinafter).

10.   As per claims 25 and 36, Mashayekhi teaches substantially the invention as claimed including a

method and an apparatus comprising:

        identifying a set of systems of a plurality of systems (col. 8, lines 14-46. failing node and failover

node of a plurality of nodes.), wherein

        each system in the set of systems meets a requirement for hosting a first application of a plurality

of applications (col. 8, lines 28-34, 50-66. Node may host application.), and

        the plurality of systems form at least one cluster (col. 8, lines 28-57. Cluster.); and

        wherein the resource is one of a plurality of resources, and each resource is associated with at

least one of the systems (col. 8, lines 14-34, 47-57. Resource and application on nodes.).

11.   Mashayekhi teaches of assigning priorities to applications, and determining if a node has

sufficient resources to satisfy the resources of the failed node. However, Mashayekhi does not

specifically teach when no systems among the plurality of systems meet the requirements for hosting the

first application, using a respective priority for each of the applications for identifying a resource to free.

        Chew teaches of determining that a device does not have sufficient resources to handle an

application, and using the priority values of each application to identify an application to terminate to

provide resources (Paragraph 0048).

12.   Firstly, it would have been obvious to one of ordinary skill in the art that a system has a limited

number of nodes (servers), such as four nodes as suggested by Mashayekhi, and it would have been

possible that none of the nodes have sufficient resources to satisfy the resources of the failed node.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was

made to modify the teachings of Mashayekhi with the teachings of Chew to determine that a device does

not have sufficient resources to handle an application, and use the priority values of each application to

identify an application to terminate to provide resources. The motivation for the suggested modification

is that Chew's teachings would improve the operation and efficiency of the nodes by reducing the

requirement of additional resources such as memory or hardware (Paragraphs 0009; 0057).

13.   As per claims 26 and 37, Mashayekhi teaches the method of claim 25 wherein the identifying the

resource further comprises using a respective capacity for each of the plurality of systems for identifying

the resource (col. 8, lines 28-34. Identify if the weight is sufficiently low to indicate that the node has

sufficient available resources to satisfy needed by failed node.).

14.   As per claims 27 and 38, Mashayekhi teaches of starting an application on an associated system.

Mashayekhi does not specifically teach the method of claim 25 further comprising: freeing the resource

such that an associated system of the plurality systems meets the requirements for hosting the first

application.

        Chew teaches of launching a new application, wherein sufficient resources are freed to meet the

requirements for handling the new application (paragraph 0048).

15.   It would have been obvious to one of ordinary skill in the art at the time the invention was made

to modify the suggested system of Mashayekhi and Chew with the teachings of Chew to free sufficient

resources to meet the requirements for handling a new application. The motivation for the suggested

modification is that Chew's teachings would improve the operation and efficiency of the nodes by

reducing the requirement of additional resources such as memory or hardware (Paragraphs 0009; 0057),

and ensuring that high priority applications of a failed node may operate on another node when a suitable

failover node cannot be found.

16.   As per claims 28 and 39, Mashayekhi and Chew taught the method of claim 27. Mashayekhi

further teaches the method comprising: starting the first application on the associated system (col. 8, lines

28-34, 53-67. Application is failed over to another node.).

17.   As per claims 31 and 42, Mashayekhi teaches the method of claim 25 further comprising:

determining that the first application is to be started (claim 1; col. 7, line 11-18; col. 8, line 26-28, 62-65.

Determine failure of node. Application is to be failed over.).

18.   As per claims 32 and 43, Mashayekhi teaches the method of claim 31 wherein the determining

that the first application is to be started comprises detecting that the first application failed (claim 1; col.

7, line 11-18; col. 8, line 26-28, 62-65. Determine failure of node.).

19.   As per claims 34 and 45, Mashayekhi teaches the method of claim 25 wherein the identifying the

set of systems comprises including a selected system in the set of systems when the selected system meets

a prerequisite for the first application (col. 8, lines 28-34. Sufficient resources to run application. col. 8,

lines 35-40. Determine in advance which applications are designated on which nodes, and what resources

each node needs. col. 8, lines 50-57. Designate failover of node based on weight of the other nodes.).

20.   As per claims 35 and 46, Mashayekhi teaches the method of claim 25 wherein the identifying the

set of systems comprises including a selected system in the set of systems when the first application does

not exceed a limit for the selected system (col. 8, lines 28-34. Sufficient resources to run application. col.

8, lines 35-40. Determine in advance which applications are designated on which nodes, and what

resources each node needs. col. 8, lines 50-57. Designate failover of node based on weight of the other

nodes.).

21.   Claims 29 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mashayekhi and Chew, in view of Ye et al. US Patent #6,874,145 (Ye hereinafter).

22.   As per claims 29 and 40, Mashayekhi and Chew taught of terminating applications based on the priority values of the applications. Mashayekhi does not specifically teach the method of claim 27 wherein the freeing the resource comprises stopping a second application that is using the resource, wherein the second application has a lower respective priority than a respective priority of the first application.

Yi teaches of terminating an application with lower priority to free resources (col. 9, lines 13-22).

23.   It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the suggested system of Mashayekhi and Chew with the teachings of Ye to terminate an application with lower priority to free resources. The motivation for the suggested modification is that Ye's teachings would ensure that high priority applications of a failed node may operate on another node, and provide resources when needed (col. 9, lines 25-29).

24.   Claims 30 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mashayekhi and Chew, in view of Imes, US Publication #2004/0049579 (Imes hereinafter).

25.   As per claims 30 and 41, Mashayekhi teaches of moving applications based on the priority of applications (col. 8, lines 58-66). However, Mashayekhi does not specifically teach the method of claim 27 wherein the freeing the resource comprises moving a second application that is using the resource to a second system of the plurality of systems, wherein the second application has a lower respective priority than a respective priority of the first application.

Imes teaches of moving certain types of applications to another location to reduce processing

demand on the resources (paragraph 0066).

26.   It would have been then obvious to one of ordinary skill in the art at the time the invention was

made to modify the suggested system of Mashayekhi and Chew with the teachings of Imes to move

certain applications, such as lower priority, to free resources. The motivation for the suggested

modification is that Imes' teachings would improve response time and reduce both network and server

load (paragraph 0066).

27.   Claims 33 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mashayekhi and

Chew, in view of Stiffler, US Patent #5,958,070 (Stiffler hereinafter).

28.   As per claims 33 and 44, Mashayekhi and Chew taught of terminating applications based on the

priority values of the applications. Mashayekhi does not specifically teach the method of claim 31

wherein the determining that the first application is to be started comprises comparing a respective

priority of the first application with each of a set of respective priorities for a set of the applications

running on the plurality of systems, and determining that the first application is to be started when the

respective priority of the first application is higher than one of the set of respective priorities for the set of

applications running on the plurality of systems.

Stiffler teaches of determining which subset of applications to run based on priority (Col 10, lines

16-22).

29.   It would have been obvious to one of ordinary skill in the art at the time the invention was made

to modify the suggested system of Mashayekhi and Chew with the teachings of Stiffler to determine the

priority of a failing computer's application with the priority of another computer's applications; and

determine what applications may run based on priority. The motivation for the suggested modification is

that Stiffler's teachings would ensure that high priority applications of a failed node may operate on

another node.   Stiffler does not specifically teach of comparing priorities of applications, and that the

first application is to be started when the respective priority of the first application is higher than one of

the set of respective priorities for the set of applications running in the systems. However, Stiffler does

teach that a subset of high priority applications is run on the second computer. Therefore, this implies that

priorities of applications are compared, and a failed node's application would run on a second computer if

the application has higher priority than the second computer's lower priority applications.

Conclusion

30.   The following prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

    i)   Stone, US Patent #6,823,382, teaches of stopping lower priority services to meet service
              level objectives for running applications.

    ii)   Judge et al. US Patent #6,430,570, teaches of terminating applications to free up memory
              (resources) for higher-priority applications.

31.   A shortened statutory period for reply to this Office action is set to expire THREE

MONTHS from the mailing date of this action.

32.   Any inquiry concerning this communication or earlier communications from the examiner should

be directed to Joshua Joo whose telephone number is 571 272-3966. The examiner can normally be

reached on Monday to Thursday 8AM to 5PM and every other Friday.

33.   If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,

Nathan J. Flynn can be reached on 571 272-1915. The fax phone number for the organization where this

application or proceeding is assigned is 571-273-8300.

34.   Information regarding the status of an application may be obtained from the Patent Application

Information Retrieval (PAIR) system. Status information for published applications may be obtained

from either Private PAIR or Public PAIR. Status information for unpublished applications is available

through Private PAIR only. For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

June 21, 2007
JJ